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PAMAV TRAINING INSTITUTE & TECHNOLOGY CENTER

PAMAVTECH was formed in 2005 to offer competency training programs and continuous education that offers up-to-date skills and knowledge thru exposure to various current industry practices. PAMAVTech's vision is to nurture talent for the development of the country and of the world. Our mission is to be the catalyst of relevant competency-based education in keeping up with the challenges of the changing times thru continuous education.

## PAMAV TRAINING INSTITUTE & TECHNOLOGY CENTER



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# ENERGY MANAGEMENT and CONTROLS

in cooperation with

**BOMI International**

**August 9, 10, 11, 2010**  
**October 20, 21, 22, 2010**

## ENERGY MANAGEMENT AND CONTROLS

### COURSE BACKGROUND

This course includes key concepts and discussions that teach fundamental maintenance and energy management control aspects that enable to run high rise building operations in a cost efficient manner. It will develop one's understanding of the operation of heating, cooling, humidification & dehumidification control application and learn about variable air volume design and building pressurization control devices. This explains also the cost-benefit analysis of HVAC, electric & lighting systems & create an energy management program.

### COURSE DESCRIPTION:

This course provides, explains & defines thermal, electric and mechanical energy, thermal conductivity, conductance and resistance. Describes heat loads, how heat is measured and transferred through conduction, convection & radiation as well as the need to implement water treatment programs, describing the factors that affect building conditions including the heat flow to the building envelope.

### WHO SHOULD ATTEND?

- Electromechanical engineers for utilities
- Electrical supervisors, technicians, electricians in commercial and industrial maintenance
- Consultants, project engineers.
- Electrical engineers, graduates who would like to be a utility & building engineer and electrical technology/vocational graduates

### COURSE FEE:

PhP 20,000.00 inclusive of snacks, lunch, Certificate of Completion  
A processing fee of USD 65.00 will be charged for testing fee for international certificate (optional)

### COURSE OBJECTIVE:

To guide and inform the industry practitioners, fresh graduates and technicians of advances in technology.

### BENEFITS:

- To provide the participant with understanding of the energy savings in the usage of thermal, electric, mechanical energy and other forms of energy used commonly in the industry
- Describe how to achieve savings in energy cost thru improved energy and management control

# ENERGY MANAGEMENT AND CONTROLS

## COURSE OUTLINE

### DAY 1

1. Identify and explain the importance of energy management.

- Energy management overview

2. Differentiate closed loop and open loop system.

- Control System Basics

3. Describe the various types, efficiencies and uses of heating system found in commercial buildings

- Heating Systems

4. Describe different types of cooling system and their level of efficiency

- Cooling System

### DAY 2

5. Identify types and configuration of CAV (Constant Air Volume) and VAV (Variable Air Volume)

- Air Handling Systems

6. Identify preventive maintenance measures and another EMO for heating system

- Energy management opportunities for HVAC systems

7. Explain fan performance curves, system resistance curves and VAV (Variable Air Volume), system curves and describe their use in modulation control.

- Ventilation System

8. Identify the benefits of good lighting

- Lightning Systems, Electrical Systems & Retrofitting

### DAY 3

9. Provide and explain heating and cooling system guidelines for SOPs (Standard Operating Procedures).

- Establishing Standard Operating Procedures

10. Identify typical EMCS (Energy Management Control Systems) components & their functions.

- Energy Management Control systems Computers and Microprocessors

11. Explain energy intensity as it relates to buildings.

- Planning and Implementing an Energy Management Program

11. Provide and explain how technical program could be incorporated into an energy management program resulting in a local value added

- Calculating the financial value of an energy management program

## YOUR INSTRUCTORS

### Engr. Rodolfo R. Penalosa, PEE, PECE, Apec Engr.

Engr. Penalosa is the Chairman and President of . He is also the President of WESTCO is a sister company of PAMAV specializing in providing electrical testing services and equipment. Engr. Penalosa is a visionary and leader of testing equipment and tools for the development and advancement of the Electrical Engineering Profession. He is a keynote speaker on Electrical Engineering Law, Substation testing and key areas in the Electrical Engineering field and has addressed various audiences both locally and the international scene. He led the Continuing Professional Education Council of the Professional Regulation Commission (PRC) as a Chairman for nine years. Currently, Engr. Penalosa is the Chairman of the Technical Panel for Engineering, Technology (TPET) of the Commission on Higher Education (CHED) and a member of the Construction Arbitration by The CIAC. His expertise contributed to being a Philippine Representative of CHED in Japan, Brunei and Pennsylvania covering the aspects of Electrical Professional Practice and Standards and APEC Competency Standards Development for Engineer Registry. Engr. Penalosa also holds Past President of Society of Philippine Electrical Contractors & Suppliers (SPECS, 1992), the Institute of Integrated Electrical Engineers of the Phils (IIEE, 1995), Past Chairman of Construction Manpower-Development Foundation, National Construction Productivity Development Plan, Department of Trade and Industry (DTI/JICA, 1994 to 1996), the President of Society of Philippine Accredited Consultants (SPAC, 2007-08) and a Past President of the Philippine Association of Board Examiners (PABE, 2001 & 2002). Engr. Penalosa has attended extensive trainings in Power System Maintenance by DOBLE in Finland, Boston and Singapore and holds a degree in Bachelor of Science in Electrical Engineering from FEATI Universtiy.

### Engr. Ulysses B. Paguio, PEE

Engr. Paguio is a regular Training Consultant of PAMAV Training Institute & Technology Center. His expertise comes from years of experience as a Power Systems and Testing Engineer in the Middle East and the Philippines, servicing companies such as Siemens, ABB Industry, Inc., and Manila Electric Company, to name a few. He is also a Professor in the Electrical Engineering Department of the Mapua Institute of Technology in the Philippines. Engr. Paguio's expertise is on the different aspects of Power System Engineering and Testing. He graduated with the degree of Bachelor of Science in Electrical Engineering and is currently pursuing his Master of Science at the Technological University of the Philippines.

### Engr. Virgilio Luzares, REE

Engr. Luzares' expertise comes from years of experience as a Faculty Member in the Electrical Engineering Department of Mapua Institute of Technology, a business owner, and a Sales Application Engineer of various companies including Honeywell and Unitech Engineering Corporation. He received the HONEYWELL Award for Excellence and Outstanding Performance from HONEYWELL Southeast Asia, Singapore. For 3 consecutive years (1987-1989), he was awarded for Top Department Sales Performance by UNITECH ENGINEERING CORPORATION. His special training includes Product Training on Detection & Monitoring System for Diesel and Gas Engine and Instruments and Sensors for Control, Automation, Monitoring, Recording and Measurements for Process Industries, Application Engineering and Maintenance / Training in the application, calibration, installation, operation and maintenance of Drexelbrook Engineering's process control instruments, HONEYWELL Industrial Control Products Training and Seminar-Workshop on Instrumentation & Control for Industrial Applications, to name a few.

## REGISTRATION

### Hands On, Competency Based Training In ENERGY MANAGEMENT AND CONTROLS

Please check the date:

- Date:**  August 19 to 11, 2010  
 October 20 to 22, 2010

**Venue:** PAMAVTECH, 7F Integrated Professional Office Building  
14 Quezon Avenue Quezon City

**Time:** 8:30 am to 4:30 pm on each day

Please fill up and return to fax 740-7602 or admin@pamavtech.com. Provide one form for each participant.

NAME (as you want to appear on certificate. Title, first name, middle initial, last name, suffix)	
DESIGNATION	
COMPANY NAME	
TELEPHONE	LOCAL NUMBER
CELLPHONE	
EMAIL ADDRESS	

### Payment:

Reservations without payment do not confirm your slot. To confirm your reservation, please pay the course fee of Php 20,00.00 per person thru China Bank (Quezon Avenue branch) Account name PAMAV Training Institute & Technology Center, C/A#: 107-119555-8. Please attach the deposit slip with this form.