



# PAMAV TRAINING INSTITUTE & TECHNOLOGY CENTER, INC.

Competency-Based Training for Global Excellence

## Substation Maintenance (Power Transformer Insulation Power Factor Testing) Hands-On

### Course Outline

At the end of the program, the participants will be able to:

- Discuss basic transformer fundamentals.
- Understand the latest transformer technology.
- Discuss making of a transformer.
- Enumerate basic oil and transformer testing methodology protocol.
- Identify and solve concerns of on the job practices.
- Discuss equipment application.
- Demonstrate actual IPF methodology and testing procedures.

#### DAY-1

- A) GENERAL INTRODUCTION AND PRE-TEST
- B) POWER TRANSFORMER THEORY
  - 1) Introduction
  - 2) Theory of Operation
  - 3) Electromagnetism
  - 4) Magnetic Circuits
  - 5) Classification of Transformers
  - 6) Losses in Transformers
  - 7) Performance Tests
  - 8) Basic Insulation System
  - 9) Transformer Rating
  - 10) Transformer Connections
- C) AMORPHOUS TRANSFORMERS (2 HOURS)
  - 1) Industry Data
  - 2) Value at The Moment

- 3) History
- 4) Amorphous Metal Technology
- 5) Loss Comparison
- 6) Heat Generation

#### DAY-2

- D) MAKING OF A TRANSFORMER
  - 1) Engineering Process
  - 2) Key Materials
  - 3) Manufacturing Process
  - 4) Design Optimization Process
  - 5) Interactions with Customers
  - 6) Electrical Design Process
  - 7) Mechanical Design Process
  - 8) Finite Element Analysis
  - 9) Manufacturing Process

- E) INSULATION POWER FACTOR TESTING
  - 1) Overall Test Connection
  - 2) Test Summary
  - 3) Calculated CHL
  - 4) Two Winding Transformer Overall Test Sheet
  - 5) Power and Distribution Transformers
  - 6) Analysis of Oil Filled Power Transformer

#### DAY-3

- F) TRANSFORMER TEST PROCEDURES
  - 1) Power Transformer Bushing
  - 2) Leakage Reactance or Short Circuit Impedance Test
  - 3) Transformer Exciting Current Test
  - 4) Transformer Turns Ratio Tests
- G) HANDS – ON TRANSFORMER TESTING

### Course details

#### Who should attend?

- Electrical Engineers
- Engineering department staff
- Test engineers
- Cadet engineers
- Substation engineers
- Engineering faculty members

#### Date/s offered:

May 12 to 14  
 June 23 to 25  
 July 20 to 22  
 August 17 to 19  
 September 29 to Oct. 1  
 December 7 to 9

#### Registration fee:

Php 12,800.00 per person  
 3 participants from one company get 10% discount

### About PAMAV

PAMAV 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. We are a pioneer training center in the Philippines that offers competency-based training for Engineering professionals.

PAMAV offers public and in-house training seminars.

For more information and assistance, contact Sales at telephone (632) 7433694 or [contact@pamavtech.com](mailto:contact@pamavtech.com)  
[www.pamavtech.com](http://www.pamavtech.com)



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### Registration form

Title	First name	Last name
Designation		
Company Name		
Telephone number		
Mobile number		
Email		

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### Other courses available

Insulation Power Factor

Electrical Design and Simulation Analysis (EDSA Paladin 2.0)

Substation Design and Construction

Computer Aided Design for EE

Effective Communication for Engineers

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