



Power Quality and Harmonics

Course Outline

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

- Familiarize with the different power quality issues and perspectives.
- Identify different power quality problems.
- Specify solutions for a particular power quality problem.
- Understand the cause and effect of harmonics to electrical system.
- Identify the ways to mitigate the effects of harmonics.
- Design a harmonic filter.
- Specify the transformer K factor rating.
- Understand the usage of power quality analyzer.

DAY-1

A) GENERAL INTRODUCTION AND PRE-TEST

B) INTRODUCTION

- 1) Renewed Awareness
- 2) Electromagnetic Compatibility
- 3) Power Quality Problem
- 4) Voltage Limits Allowed by ERC
- 5) End-User Perception
- 6) Utility Perception
- 7) Power Quality Issues
- 8) End-User Concerns
- 9) Utility Concerns
- 10) Equipment Manufacturer's Concern
- 11) Ideal Voltage or Current Waveform
- 12) Voltage or Current Deviation

C) POWER QUALITY PROBLEMS (2 HOURS)

- 1) Impulsive Transient
- 2) Oscillatory Transient
- 3) Overvoltage
- 4) Undervoltage
- 5) Sustained Power Interruption
- 6) Momentary Power Interruption
- 7) Short Duration Power Interruption
- 8) Voltage Sag
- 9) Voltage Swell
- 10) Voltage Imbalance
- 11) Voltage Fluctuation
- 12) Harmonic Distortion
- 13) Voltage Variation Computation
- 14) Voltage Unbalance Computation

D)

SOLUTIONS TO POWER QUALITY PROBLEMS

- 1) Motor Generator Sets
- 2) Uninterruptible Power Supply (UPS)
- 3) Ferroresonant Transformers Or Constant Voltage Transformer
- 4) Dynamic Voltage Restorer
- 5) Static VAR Compensator
- 6) Isolation Transformers and Reactors (chokes)
- 7) Transient Voltage Surge Suppressor (TVSS)
- 8) Line Voltage Regulators
- 9) Harmonic Filters
- 10) Electroflow
- 11) Lightning Protection
- 12) Surge Protection
- 13) Power Quality Meter
- 14) Power Quality Analyzer

DAY-2

E) POWER SYSTEM HARMONICS

- 1) Introduction
- 2) Definition of Terms
- 3) Sources of Harmonic Currents
- 4) Effects of Harmonics
- 5) System Response Characteristics
- 6) Resonance Conditions
- 7) Control of Harmonic Currents
- 8) Analysis Methods
- 9) Design of Harmonic Filter
- 10) Derating of Power Equipment
- 11) Power Failures Due To Harmonics
- 12) K Factor Rating of Transformer

DAY-3

F) HANDS-ON ON POWER QUALITY AND HARMONICS

Course details

Who should attend?

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

Date/s offered:

March 16 to 18
May 19 to 21
July 27 to 29
October 5 to 7

Venue:

7th Floor Integrated
Professional Office Bldg, 14
Quezon Avenue, Quezon City,
Philippines

Registration fee:

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

Student and faculty rate less
30%

About PAMAV

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PAMAV offers public and in-house training seminars.



PAMAV TRAINING INSTITUTE & TECHNOLOGY CENTER, INC.

Competency-Based Training for Global Excellence

Power Quality and Harmonics

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

Substation Design and Construction

Protective Relaying

Computer Aided Design for EE

Effective Communication for Engineers

Professional Image and business etiquette

For more information and assistance, contact Sales at telephone (632) 7433694 or contact@pamavtech.com
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