

## Executive Development Training

### Safety Earthing & Lightning Protection Practical Seminar

Protect Your Personnel, Electrical/Electronic Systems & Equipment

An up to date course providing delegates with the requirements and understanding of SANS 10199/725 and 10313/62305 standards

#### **COURSE SUMMARY:**

The aim of this course is to increase awareness of, and importance of, the correct earthing & LP practices to ensure safety of personnel, plant structures and equipment under all conditions, At the same time to be aware of the codes that govern the designs and installations of earthing and LP systems. This course looks at these issues from a fresh yet practical perspective and enables you to reduce down time on your plant and equipment by correct application of these principles.

**OUR VISION IS : A SA FREE FROM LIGHTNING RELATED DISABLING INJURIES  
DEATH, DOWN TIME, DAMAGE, DESTRUCTION, DISRUPTION, DESPAIR**

Delegates receive a certificate on completion of the course.

Accredited 2 CPD points per delegate for the two day course

Registration will commence at 08h00 on the first day with the course beginning at 08h30 on each day.

Refreshments will be provided at appropriate intervals, and lunch will be served at 12h30.

The course will conclude at 16h30 on each day.

(all timings are approximate due to the interactive nature of the course)

### **ATTEND AND GAIN PRACTICAL INSIGHTS INTO:**

- *The science of earthing, and the art of lightning protection*
- *The codes of practice that govern the installation and maintenance of safety earthing and lightning protection systems in South Africa*
- *Code requirements, to implement correct, compliant earthing systems, different earthing system requirements, principal design considerations, methods of meeting system requirements*
- *The Key is safety, to protect: personnel, plant and equipment during earth fault, or lightning strike conditions.*
- *Gain a new understanding of information required to design, install, test, and maintain correct earthing and lightning protection systems according to the SANS codes of practice .*

#### **COURSE TRAINER:** Mike Visser :Managing Director of Power Quality

The course has been designed to demystify the subject of Lightning Protection, Surge Protection and Earthing, and presents the subject in a clear, straightforward manner. Installation, testing and inspection procedures for industrial and commercial power systems will be examined in detail. The method of training is to give a short history on the subject, detailing the requirements, then address how the codes of practice have changed through the years. Once the delegates have a understanding of the subject a practical session is given to enable the delegates to design an earthing system from scratch, which conforms with code of practice requirements. That is, soil resistivity prospectation, target resistance, and the relationship between earth fault current, trip time, and earth mat design.

Benefit from 27 years of excellent service

**A TOKEN EARTH IS NO EARTH**

# Safety Earthing & Lightning Protection

## DAY ONE

### Session 1:

#### Lightning Protection

- History of Earthing & Lightning Protection
- Type of earthing systems
- Corrosion
- Requirements of LP Systems
- Codes of Practice
- Types of Lightning
- Lightning Statistics

### Session 2:

#### Different Types of Earthing Systems

- Effects of Lightning
- Sources of Damage
- Types of Damage
- Protection Measures
- Technologies in Use
- Static Protection
- Petrochemical Considerations

### Session 3:

#### Risk Management

- Practical Session : Exothermic Welding
- The SANS 62305 Risk Assessment
- Zones & Zoning
- A Case Study
- SANS 62305 Risk

### Session 4:

#### Lightning Protection Design

- The Art of Lightning Protection
- Risk Determination & Risk Management
- Conformance to design requirements
- Options & Critical Success Factors

#### **Benefits include:**

- Participation in an interactive workshop;
- Learn from a recognized expert with cross-industry experience;
- Comprehensive course documentation and a sample of quality manual
- A course accredited by SAIEE and 2 CPD points are gained when attending.

## DAY TWO

### Session 5:

#### Safety Earthing Systems

- Recap on Day 1
- Lighting protection Q&A
- Options for dealing with cable theft
- The nature of the earth fault
- The Shock Situation
- Grid Potential Rise
- Understanding step and touch potentials

### Session 6:

#### Designing of Earth Mats

- Understanding Current Carrying Capacity
- Calculating Electrode resistances
- Step & Touch Potential Calculation
- Measuring Step & Touch Potential
- Theory of Resistance & Resistivity Testing
- PV and generation installations,

### Session 7:

#### Practical Field Test & Earth Mat Design

- Practical Session : Resistivity & Resistance Testing
- Using the results to design a cost effective earth mat for Safety Earthing or LP, showing multiple compliant options
- Costing of the earth mat designs

### Session 8:

#### Design Completion Q&A, Wrap Up

- Comparing the different earthing solutions for a cost effective design
- Reasons for and content of PM programs
- Implementation of a P/M program

#### **ABOUT YOUR COURSE FACILITATOR:**

Mike Visser is managing director of Power Quality with a background in computer science and a keen interest in safety. Mike is on the local mirror committee for TC 81. He has consulted and implemented safety earthing and lightning protection systems for many blue chip companies including, Sasol (petrochemical), De Beers (diamonds), Anglo Gold (mining), Centurion Municipality, Middleburg Municipality, Associated Manganese Mines of SA Ltd, Alpha Cement and many more. Power Quality was awarded the several earthing contracts and the cathodic protection installation of the Gautrain Project which was completed in March 2011.



# POWER QUALITY <sup>(PTY) LTD</sup>

<b>Venue</b>	<b>Dates:</b>	phone	011 827 2228 / 3270
<b>Gauteng</b>	<b>10<sup>th</sup> and 11<sup>th</sup> October 2018</b>	mobile	084 558 0307
		email	<a href="mailto:jennifer@powerquality.co.za">jennifer@powerquality.co.za</a> or <a href="mailto:lydia@powerquality.co.za">lydia@powerquality.co.za</a>
In-House	In House Courses Are available too email : <a href="mailto:info@powerquality.co.za">info@powerquality.co.za</a> <a href="http://powerquality.co.za">http://powerquality.co.za</a>	Contact person: Jennifer Borril	
<b>POWER QUALITY (PTY) LTD</b>		HEAD OFFICE : 63 Cachet Road Parkhill Gardens GERMISTON	
reg no 2017/651434/07		P O Box 4628, GERMISTON SOUTH 1411	
<b>COST :</b>		<b>Special Offer</b>	
<b>R7 900pp (ex vat)</b>		<b>R11 000 (ex vat) for 3 Staff</b> <b>Or 2 for the price of 1</b>	

### PERSONAL DETAILS

*Please print clearly or attach business card*

	<i>DELEGATE 1:</i>	<i>DELEGATE 2:</i>	<i>DELEGATE 3:</i>
Surname (Dr/Mr./Mrs./Ms)			
First Name			
Job Title			
Organization			
Address			
Postcode			
Telephone			
ID Number			
E-mail address			

I understand and accept the booking terms and conditions:

Signature		
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### AUTHORISATION:

*This booking is invalid without a signature. Signatory must be authorized to sign on behalf of contracting organization*

Approving Manager (Dr/Mr./Mrs./Ms)	
Job Title	
Department	
Email (required)	
Telephone	
Signature	Order #

### BY COMPLETING THIS FORM, YOU UNDERTAKE TO ADHERE OUR CANCELLATION AND PAYMENT TERMS.

Fees include course materials, lunches, and refreshments for the duration of the program. Incidental expenses: Power Quality Commercial is not responsible for covering airfare or other travel costs incurred by registrants. Delegates will be responsible for their own accommodation. Please note that Power Quality Commercial reserves the right to refuse admission to the training if proof of payments has not been received prior to the start of the course. An invoice will be sent upon receipt of registration form. Payment must be received in full prior to the course start. All registrations will be confirmed via email.

### Cancellation Policy for the contract partner:

In case the contract partner cancels his/her seminar reservation, he/she shall pay Power Quality Commercial, the following cancellation fees:

Postponement : No Charge. Cancellation within 2 weeks prior to the day of the seminar : 30% of the seminar fee  
If a contract partner will not attend the seminar, he/she can have someone else substitute. There are no charges for substitutions.

Disclaimer We reserves the right to change or cancel any part of the program due to unforeseen circumstances.

### WHO SHOULD ATTEND:

This course is designed to benefit technical personnel from:  
utilities, municipalities, petrochemical, mines industries and commercial institutions, involved in the utilization and/or design of lightning protection of power systems: transmission and distribution lines, substations, and the use of test standards. Electrical Engineers & Inspectors, Electricians, Power System Protection Engineers, Instrumentation & Control Engineers, Application & Design Engineers, Project Engineers, Data Systems Planners and Managers, Technologists & Technicians, Safety Professionals, Electrical Contractors.

26 years of practical experience to guide you