



## Instrument Transformers

### Course Overview

**Instrument Transformers** are the primary protection and measurement components in high and medium voltage electrical power systems.

This course aims to provide electrical professionals with a clear understanding of these key and critical components within a power system context. It explains the physical characteristics and the role it plays in the power generation and delivery process, what it can and cannot do in terms of its operational specifications.

It further provides an understanding of whole life cycle engineering management of these components in terms of its performance and manufacturing specifications, testing, safe operation and sound integration within a power system.

The course covers current and voltage transformers for both measurement and protection applications.

- Physical constructional features,
- Electrical characteristic design parameters
- Specification details and requirements
- Performance requirements, characteristics, and parameters
- Operational features, conditions, requirements and limitations
- Electrical testing parameters
- Electrical protection requirements

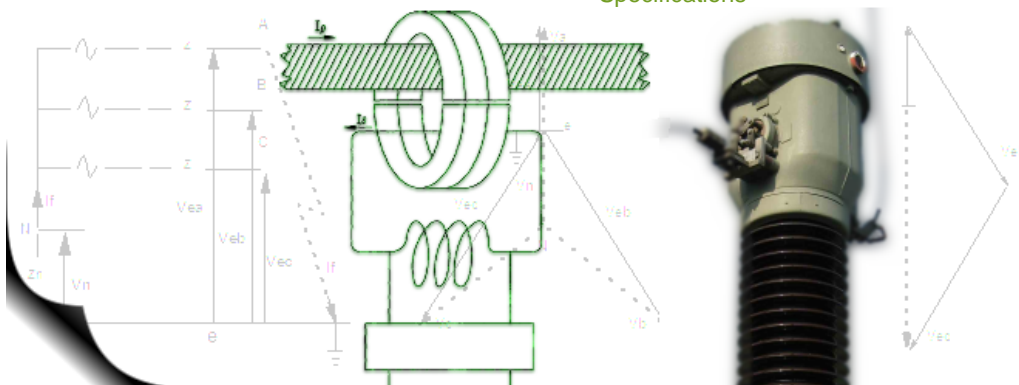
### Topics

#### Voltage Transformers

- Physical and constructional aspects - (magnetic and capacitor dividers).
- Electrical performance characteristics and parameters
- Equivalent circuit
- Performance specification - accuracy and load limitations
- System application requirements
- Regulation - active and reactive load behavior
- Testing and maintenance
- Specifications.

#### Current Transformers

- Physical and constructional aspects
- Electrical performance characteristics and parameters
- Equivalent circuit
- Performance specification - accuracy, fault current and load limitations
- Steady state and transient behavior
- System application requirements - optimal positioning
- Various performance classes
- Various types - multi-core / multi-ratio / multi-winding / zero sequence shunt and auxiliary applications
- Testing and maintenance
- Specifications



Course dates  
TBA

Course duration  
2 days – 08:30 to 16:00 daily

Course fees  
R4 400 (incl. VAT)  
per delegate

Course venue  
NETGroup Academy  
28 Regency Rd  
Route 21 Corporate Park  
Cnr Boeing & Nelmapius Rd  
Irene, Centurion

#### What's included

- Domain expert facilitators
- Training Guide
- Quality Training Venue
- Lunches and Refreshments
- Ample Parking

Registration deadline  
2 weeks prior to the  
scheduled course

#### Contact details

Tel: 012 345 6005 /  
0861 NET GRP

Fax: 012 345 6633

email: [academy@netgroup.co.za](mailto:academy@netgroup.co.za)

Private Bag X14  
Elardus Park  
0047

0861 NET GRP  
[www.netgroup.co.za](http://www.netgroup.co.za)

# NETGroup Academy



Who should attend  
Engineers, Technologists and  
Academics working in:

- the power generation industry;
- industrial production plants;
- the electrical power consulting industry;
- power system fields involving planning, design, specification, construction, testing, commissioning, operation and maintenance of rotating power plant.

## Accreditation

This course is being accredited for 2 CPD points.

NETGroup Academy is registered with the ISETT SETA and Consulting Engineers South Africa as an accredited training service provider.



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## Outcomes

When you have completed this course, you will:

- understand and be able to describe the fundamental features, the role, electrical parameters, operating requirements and limitations as well as safe application and handling of these important and complex power components within a power system
- be able to judge the operational health of the equipment
- be able to perform fundamental testing and evaluation of compliance with specifications.
- be able to judge on the fitness and correct application and management of these devices within a given power system
- have a reasonable understanding of the requirements of suitable life cycle engineering management of these components.
- be able to support the planning, specification, technical evaluation, installation, and testing, operating and maintenance processes of these devices.

## About the Venue

The NETGroup Academy's training facility offers two multiple purpose instruction rooms each comfortably accommodating up to 20 students in multiple desk layouts. Depending on the seating configuration, the rooms may accommodate lecture-style instruction or encourage interaction in the form of roundtable discussions and teleconferences.

Teas and lunches are arranged with the on-site cafeteria and ample parking is available for students.



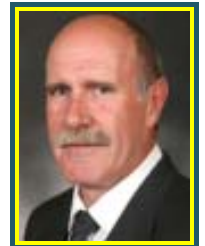
As a training facility for adult professionals, the NETGroup Academy offers a flexible and technologically-advanced learning environment that is safe, healthy, comfortable, aesthetically-pleasing, and accessible. Business stations and wireless access points with **complimentary Internet access** are available to allow students to carry out some business functions or to quickly connect with their organizations if need be during or between their training sessions.

## Your Course Facilitators

### Olaf von Abo

M.Dip. Electrical H.C.

Chief Design Eng.  
NETGroup SA



Olaf has some 22 years practical experience in the Protection of High and Medium Voltage Transmission and Distribution networks.

Execution of projects for various utilities and large industrial companies in network and plant commissioning, audits, design, specification, power system analysis, protection coordination studies and project management has earned him wide regard as industry expert.

### Hennie Harmse

Pr. Eng. B.Sc. (Elec.).  
MSAIEE



Hennie holds in excess of 30 years experience in Power System Protection, Control and Measurement and the Management of Transmission and Distribution Systems. He has been actively involved in Power System training since 1994