



## Power System Calculations

### Course Overview

Power System Calculations are essential tools for the planning, design, protection engineering, testing, commissioning and operational management of any electrical power generation, transmission, distribution and reticulation system.

This course aims to provide electrical professionals with a clear understanding of:

- Electrical parameters;
- Mathematical modeling;
- Analysis tools

needed to perform calculations and studies into power flows, load and fault currents and voltages in any power system.

The course further covers single phase, two phase and three phase fault conditions in power systems and gives guidance on the calculation of current distribution at any point in a system.

### Topics

- Vector algebra and conventions for mathematical expressions
- Mathematical manipulation of network impedances, voltage and currents
- The use and benefits of the 'per unit system'
- The use and benefits of the 'symmetrical component system' for unbalanced conditions
- Example study of an unbalanced load condition

Course dates  
TBA

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

Course fees  
R6 600 (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
- Lunch and Refreshments
- Ample Parking

Registration deadline  
2 weeks prior to the  
scheduled course

### Contact details

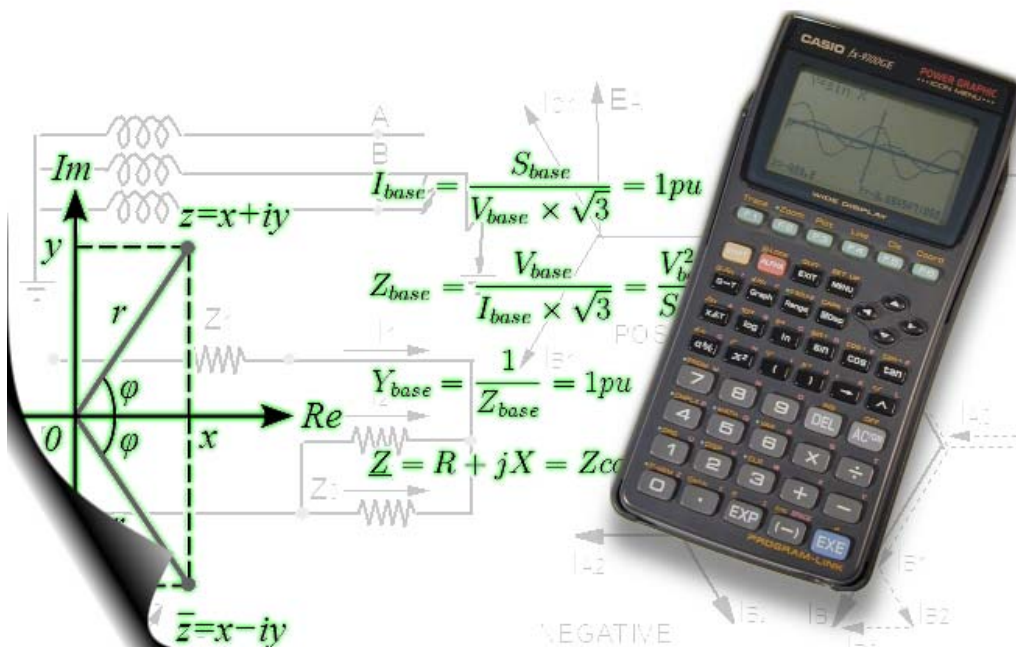
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# NETGroup Academy



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 3 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 requirements, principles and dynamics of power system load and fault studies.
- be able to do system load and fault calculations of voltage and currents
- be able to calculate protection relay setting parameters
- be able to specify and judge load and fault current capabilities of system components
- be able to support the planning, specification, technical evaluation, operating and maintenance processes of power systems and components.

## 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.



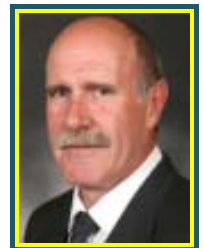
As a training facility for adult professionals, the NETGroup Academy offers a flexible and technologically-advanced learning environment that is safe, healthy, comfortable, aesthetically-pleasing, and accessible. Business stations and wireless access points with **complimentary Internet access** are 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