

PPA Energy Academy

Training Courses 2012

Your coaches:

About PPA Energy Academy

PPA Energy is a leading energy and management consultant. We provide specialist, high value training to clients in emerging markets, including many current and past clients in Africa, and our range of training programmes and materials has been developed from extensive experience with clients around the world, in Africa, Asia, Europe and the Americas.

www.ppaenergy.co.za



Dr Graeme Chown

An expert in system operations, frequency control, generator control, ancillary services and markets. Graeme spent 18 years as a senior expert in Eskom prior to joining PPA Energy, and is an internationally recognised expert in system operations. He has run training on these subjects type in a range of other African countries, including South Africa, Tanzania, Malawi, Mauritius and Namibia.



Fhedzi Modau

A System Operations and Planning engineer with detailed experience in power system control & stability, generator testing, model development and validation. Fhedzi formerly worked for Eskom in Power System Studies, System Operations and Generation Business, latterly holding the title of Chief Engineer before leaving to join PPA Energy, where he works with Graeme on a range of consulting and training projects.

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Reference No.: PPA001

Overview

This course covers the basics of frequency, why it changes and how it is controlled.

Who should attend/Prerequisites

The course is designed to cater from non-technical people to engineer level. The course level changes depending on the participants. There are no prerequisites

Outcome from training

A basic understanding of frequency and the control thereof.

Topics

- What is frequency and why control
- Supply demand balance
- Frequency capabilities of primary electrical equipment
- Primary frequency control principles
- Secondary frequency control
- Droop settings
- Practical response from generators
- Load frequency response
- Demand side response
- Under frequency load shedding

Course date: tbd

Venue: Johannesburg or in house

Duration: 1 day

Cost: R2500 per person

How to book:

Please submit your [booking form](#) online or contact our office. The contact details are shown in the final page of this brochure.

Reference No.: PPA002

Overview

Interconnected system operations course covers the basic knowledge of the difficulties and benefits to interconnecting neighbouring countries or systems.

Who should attend/Prerequisites

The course is designed to be attended from managers to technical staff. There are no prerequisites

Outcome from training

A clear understanding of the technical difficulties and benefits of interconnecting two countries

Topics

- Interconnection principles
- Benefits of interconnecting
- Frequency and inter change control
- Calculation of Area Control Error (ACE)
- Inadvertent energy and balancing
- Automatic generation Control
- Tele-control and Remote Terminal Units
- Economic dispatch principles
- Operating Reserve
- Emergency Operations

Course date: tbd

Venue: Johannesburg or in house

Duration: 1 day

Cost: R2500 per person

How to book:

Please submit your [booking form](#) online or contact our office. The contact details are shown in the final page of this brochure.

Reference No.: PPA003

Overview

The course covers the standard IEEE governor models for Hydro, thermal, engine and gas turbines power stations. A refresher course on the typical Laplace models used for modelling.

Who should attend/Prerequisites

The course is designed for generation, system operations, and planning engineers who would like to do long term frequency dynamic studies such as frequency response to disturbances and under frequency load shedding studies.

The student should have a basic understanding of frequency control and Laplace transforms

Outcome from training

Basic knowledge of standard IEEE models used for governor controls and typical parameters.

Topics

- Modeling principles
- Review of Laplace transforms
- Introduction to standard IEEE models
- Methods to identify model parameters
- Purpose of studies

Course date: tbd

Venue: Johannesburg or in house

Duration: 1 day

Cost: R2500 per person

How to book:

Please submit your [booking form](#) online or contact our office. The contact details are shown in the final page of this brochure.

Reference No.: PPA004

Overview

This course covers the basics of voltage control. How it is controlled by the generator and other additional power system equipments.

Who should attend/Prerequisites

This course is for personnel requiring specialist knowledge with regard to voltage control apparatus in the power system. It would further suit anyone specifically interested in the areas of voltage stability.

Outcome from training

A basic understanding of voltage control and voltage stability.

Topics

- Voltage control principles and elements
- Automatic Voltage Regulator
- Power System Stabilizers
- Static Var Compensators
- Switching of lines
- Reactive power control
- Contingency analysis principles

Course date: tbd

Venue: Johannesburg or in house

Duration: 1 day

Cost: R2500 per person

How to book:

Please submit your [booking form](#) online or contact our office. The contact details are shown in the final page of this brochure.

Reference No.: PPA005

Overview

An introduction to the fundamentals of HVDC covering thyristor operation, the functions of smoothing reactor and filters, telecommunications and earth return. The course covers the high level control systems and the co-ordination of voltage, current and power transfer. The use of Insulated Gate Bipolar Transistor for HVDC is presented

Who should attend/Prerequisites

Engineers and technical staff that require knowledge of HVDC systems

Outcome from training

Knowledge of HVDC system operation and when the technology is efficient to use

Topics

- HVDC principles and elements
- HVDC vs HVAC
- Current Source Converters – Thyristor
- Smoothing reactor and DC filters
- AC filters
- Telecommunications
- Ground return
- Control Systems
- Voltage Source Converters - IGBT

Course date: tbd

Venue: Johannesburg or in house

Duration: 1/2day

Cost: R1250 per person

How to book:

Please submit your [booking form](#) online or contact our office. The contact details are shown in the final page of this brochure.

Reference No.: PPA006

Overview

Practical training on system operator training simulator including development of training cases

Who should attend/Prerequisites

System Operations engineers and trainers. Should have reasonable knowledge of frequency control, Laplace modelling and IEEE governor models

Outcome from training

Knowledge on operation of training simulator and development of training cases

Topics

- Practical examples of frequency principles including
 - Primary frequency control
 - Automatic Generation Control
 - ACE calculation
 - Tieline control and inadvertent energy
 - Time error
 - Economic dispatch
- Demonstration of long term studies using Matlab

Note:

This course is based at Eskom on the Eskom training simulator and therefore depends on simulator availability

Course date: tbd

Venue: Johannesburg or in house

Duration: 2days

Cost: R8000 per person
minimum of 3 persons and
maximum of 5 persons

How to book:

Please submit your [booking form](#) online or contact our office. The contact details are shown in the final page of this brochure.

Course Title	Reference No.	Duration	Cost (per course per delegate)
Loading Desk Observation	PPA007	1 day	R2500
System Restoration	PPA008	2 days (1 day theory & 1 day practical)	R8000
Dynamic Stability	PPA009	1 day theory	R2500
SAPP Operation guidelines and rules	PPA010	1 day theory	R2500
Transmission Pricing and ancillary services	PPA011	2 days theory	R5000
Markets and trading including SAPP DAM introduction	PPA012	1-2 day theory	R2500 – R5000

❖ **Payment method**

Payment terms will be 30 days from invoice date, all courses will be invoiced on completion minus the deposit (see below).

A 25% deposit is required for course booking, this will normally be deducted from our invoice. In the event of cancellation of a course, this will be refunded in full provided the client provides us with at least 30 days' notice. If the course is cancelled by the client within the 30 day period the deposit is not refundable;

❖ **Minimum number of students: 5**

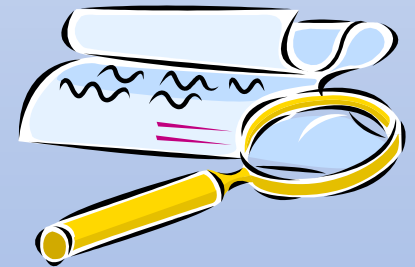
Subject to the above minimum number of delegates, individual delegate names and numbers can be changed at any time up to one week before the course date. After this date we may not be able to change delegate details, specifically for courses in South Africa where security passes are required from Eskom;

❖ **Venue, lunch, teas and coffee**

If the course is provided in South Africa, refreshments and venue are included.

❖ **Accommodation and other meals excluded**

If course is held on client site then courses are charged at R 12000 per day plus travelling, accommodation and meals based on actual expenses incurred for trainers travelling from South Africa.



Contact Details:

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Booking /Registration Form:

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