



Effective
Human
Intervention
LEADERS IN TRAINING

Recognised for Continuing
Professional Development
(CPD) by SAAMA in accordance
with ECSA guidelines



Medium & High Voltage Switching Procedures (ORHVS)



All persons who may be required to operate electrical
switchgear for isolation and maintenance must be trained!
ARE THERE SAFETY RULES? WHAT TRAINING IS REQUIRED?

OPTIONAL
SEPARATE BOOKABLE PRACTICAL SWITCHING
(1000 TO 132 000 VOLTS) SITE VISIT

Medium & High Voltage Switching Procedures

COURSE SYNOPSIS

The purpose of this course is to equip personnel working with, or associated with, High Voltage Switching, with the knowledge they require to carry out their functions in a safe and competent manner.

This course is applicable to those carrying out High Voltage Operations i.e. Switching, Installation or Maintenance Works, as well as persons who deal with these systems from a managerial or supervisory perspective. It will offer a structured approach and will include Assessments & Exams.

It will provide participants with a solid foundation in both the theoretical and practical aspects of the operation of High Voltage Switching Procedures. ORHVS covers from 1 000 to 132 000 volts.

COURSE OUTCOMES:

- Understand the general safety requirements for operating high voltage equipment
- Understand the responsibilities of the authorised person
- Understand the importance of written operating procedures
- Understand the application of permit to work and clearance permits
- Understand how switching is done safely and in compliance with the OHSACT

WHO SHOULD ATTEND?

- ✓ Electrical Engineers
- ✓ Electrical Supervisors
- ✓ Electricians
- ✓ Millwrights
- ✓ Authorised Persons
- ✓ Contractors

BENEFITS INCLUDE:

- Participation in an interactive workshop
- Learn from a recognised expert with cross industry experience
- Comprehensive course documentation
- Certificate on completion of the assignment
- Accredited to gain 3 CPD points by SAAMA
- Certificate on successful completion of theoretical and practical assessment

ABOUT YOUR FACILITATOR

Ian Mee (CEM, Pr. Tech.Eng. Pr.Cert.Eng. SM-ICMEE-SA, M SAIEE, M-IPET MIE 00009)

Ian Mee is registered as a Professional Technologist, Professional Certificated Electrical and Mechanical Engineer and registered as a Master Installation Electrician. He has 50 years of Industrial experience in Electrical, Mechanical and Process Engineering which included chemical, rubber, paper, sugar, shipping and food industries. With over 20 years in the chemical and allied Industrial environment at senior management levels. The last 20 years running a consulting practice. Ian Mee is a registered Assessor for EWSETA and is a SANAS accredited Authorised inspection Body and is recognised by Department of Labour as an AIA (CI 014)



CUSTOMISED VIRTUAL TRAINING AND/OR IN-HOUSE TRAINING

If you wish to organize a Virtual Instructor Led Training session or In-House session for your organization, we will custom design a session that will help you achieve your desired learning goal. The main advantage of custom designed VILT, in addition to being significantly cost effective, is that they address topics specifically related to the needs of your organization. **To discuss the possibility of designing and conducting such a session or In-House training session, contact us on 021 979 5891 or callie@ehiafrica.co.za for a comprehensive quotation.**



REGISTRATION CONFIRMATION

Complete your registration form. Receive your invite and confirm your VILT session by clicking on the link in the email invite. Click "Add to calendar" to ensure you do not miss the training course.

Alternatively, a signed In-house quotation will secure your group training session, followed by an invoice and date confirmation.

Medium & High Voltage Switching Procedures

COURSE OUTLINE

DAY 1

INTRODUCTION

KNOWLEDGE PRE- ASSESSMENT

MODULE 1

Session 1

- ORHVS
- OHSACT
- Policies and procedures
- Normative references
- Terms, definitions, and abbreviations

Session 2

Access

- Logbook
- Permits
- Duties and responsibilities of authorized persons when arriving at the substation
- Access to live chambers, prohibited and restricted areas

Session 3

Keys 3

Keys

- Issue of keys
- Control of keys
- Keys for live chambers and prohibited or restricted areas at power stations
- Keys for live chambers and prohibited or restricted areas



MODULE 2

EXAM FOR MODULE 1

Session 1

Lock out and Isolation

- General
- Reason for isolation and earthing
- Permits
- Company procedure



132 000 VOLT SWITCHING PANEL



MEDIUM VOLTAGE SWITCHING (11 000 VOLT)

MODULE 3

EXAM FOR MODULE 2

Session 1

Operating principles

Requirements

- General
- Control of power systems
- Duties and responsibilities of control officers
- Issuance of receipt, retention, and clearance of operating instructions
- Powering up apparatus on first installation or after alteration or repairs
- Switching, isolating, safety testing and earthing operations
- Making apparatus safe
- Warning notices
- Displaying earthing labels.
- Safety testing of feeders or apparatus

Medium & High Voltage Switching Procedures

DAY 2

MODULE 4

Requirements

- Exams for work on module 3.
- Session 8 - Abnormal conditions and exceptions
- Session 9 - Commissioning and Testing
- Session 10 - Introduction to Live work

Earthing

- Work on lines or apparatus
- Returning apparatus to service
- Exemption from general procedure
- Supervision

MODULE 5

EXAM FOR MODULE 4

Abnormal condition

- Reports to the control officer
- Risk of tripping
- Emergency switching
- Communications system
- Restoration of supply
- Establishment of a temporary local control centre
- Re-energising of overhead lines

MODULE 6

EXAM FOR MODULE 5

Session 1

Testing of apparatus

- Generation system
- Distribution system
- No switching while work is in progress in a live chamber

Session 2

Live work

- Authorized persons
- Live work at power stations or on the distribution system

MODULE 7

EXAM FOR MODULE 6

Session 3

Work permits

- Work carried out at power stations under a work permit
- Work permits for transmission and distribution system
- Isolation procedures

- Permit to work system
- Review the company permit
- Log sheets
- Carry out the company operating procedures
- Obtain company permits, isolation certificates, and PPE required to do the job

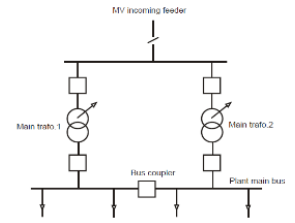
DAY 3

MODULE 7

Session 1

Develop the switching task

- Earthing equipment
- P P E requirements
- Key and Key control
- Lock out and tagging
- The general layout and drawings required
- Types of switch gear and control gear
- General safety features and operating requirements
- The OEM operating manuals
- Electrical network arrangements
- Electrical system fault levels calculations
- Fault conditions
- Arc flash considerations



MODULE 8

Session 2

Protection Devices

Operating and Safety Devices

The choice of electrical protection, components and extent

of the system applied should be made in relation to:

- a) Equipment being protected,
- b) Degree of selectivity required,
- c) Risks associated with failure,
- d) Criticality of the supply,
- e) Speed with which supply should be restored,
- f) auto-reclosing may or may not be called for, and
- g) Need for remote indication or switching

Session 3

DEVELOP THE P O E

MODULE 9

Session 1

FINAL EXAM



Optional: Separate Bookable Site Visit Practical Switching (1000 to 132 000 Volts)

The practical switching procedure will include the following, but not limited to the contents and its purpose made for the application:

- safe operating and fault finding according to your equipment requirements
- check & use your Standard Operating Procedures or suitable procedures developed for and approved by your GMR 2.1 Engineer
- the company own electrical operating procedures and permits
- Include techniques for fault finding procedures such as over current and earth fault problems
- check & use your permit to work system incorporating your PPE requirements
- do a practical assessment on individuals up to the extent of their job function and appointment which may include authorization by the GMR 2.1 engineer who would be required to witness the switching operation
- assess and certify the students according to safe operating procedures as contemplated in NRS 040 suite of standards and be operated as many times as there are students

The GMR 2.1 responsible person / engineer must be present during the switching sessions

The final declaration of competence can only be done after successful completion of the portfolio of evidence and the student has switched under the supervision of the "senior authorised person" acceptable to the GMR 2.1 engineer.

The practical switching is done on your actual switchgear

The switchgear must be made available on the day of practical switching

Continuing Professional Development (CPD) refers to continuing education and training. CPD also refers to the systematic maintenance, improvement and broadening of knowledge and skills and the development of the necessary personal qualities for the execution of professional duties throughout a person's career. It is the learning and development that takes place after completion of educational studies and by which registered persons maintain and develop competencies to continue to perform their roles efficiently through further training and experiences. **ECSA is recognised by SAQA as a Professional Body ID: 623. CPD registered courses can be submitted on your WSP.** EHI's courses are accredited through SAAMA for approval of CPD activities which will automatically be accepted by ECSA.

This is a short learning programme, and you will not receive credits towards formal learning registered on the SAQA database. Most short learning programmes are **aligned** to a unit standard.