

MV & LV Electrical Reticulation Systems: Design, Installation, Refurbishment, Testing & Commissioning

OVERVIEW

Today, the demand for technical skills and expertise in Medium Voltage/Low Voltage (MV/LV) electrical reticulation is increasing. It is the responsibility of companies, industries and municipalities to improve and educate their workforce to flow with the technological trend in MV/LV reticulation. Selections of appropriate MV/LV reticulation philosophy, equipment, cable sizing, fault level calculations, earthing design, protection schemes, etc. are crucial matters that determine any electrical reticulation's life span. Nowadays, several methods of MV/LV reticulation have been developed, for instance, philosophies like SWER, phase-to-phase systems, single-phase and dual-phase systems have evolved as the most cost-effective systems. However, MV/LV electrical reticulation methods are not always the same in a different environment; therefore, in-depth knowledge of reticulation methods is required by a designer to design a system that will provide maximum return on investment considering capital cost as well as operations and maintenance costs.

This intensive two-day workshop based on appropriate SANS and IEEE standards aims to expound reticulation practices by thoroughly explaining with detailed discussion and real-life practical examples of design, installation, refurbishment, and commissioning of MV/LV electrical reticulation.

BENEFITS

- Understand MV and LV reticulation system architecture and components
- Design efficient and compliant electrical distribution networks
- Select suitable cables, switchgear, transformers, protection devices, and accessories
- Apply best practices for installation and refurbishment of electrical systems
- Conduct inspection, testing, and commissioning of MV/LV systems
- Diagnose faults and troubleshoot common operational issues
- Ensure compliance with national and international electrical standards
- Improve reliability, efficiency, and safety of electrical networks

WHO SHOULD ATTEND

- Electrical Engineers
- Power System Engineers
- Electrical Technicians
- EPC Contractors
- Utility Personnel
- Plant Engineers
- Electrical Inspectors
- Commissioning Engineers

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MV & LV ELECTRICAL RETICULATION SYSTEMS: DESIGN, INSTALLATION, REFURBISHMENT, TESTING & COMMISSIONING

Fundamentals of MV & LV Electrical Reticulation

- Introduction to electrical reticulation systems
- MV vs LV network structures
- Distribution philosophies and configurations
- Radial, ring main, and interconnected systems
- Power flow principles

MV/LV System Design Principles

- Load assessment and demand calculations
- Voltage drop calculations
- Short-circuit analysis
- Fault level determination
- Cable sizing and route planning
- Transformer sizing and selection
- Network protection coordination

Electrical Equipment Selection

- MV switchgear and LV switchboards
- Circuit breakers and isolators
- Ring Main Units (RMUs)
- Transformers and substations
- Protection relays
- Busbars and distribution panels
- Earthing and lightning protection systems

Cable Systems & Installation Techniques

- Cable types and applications
- Cable laying methods
- Trenching and duct systems
- Jointing and termination methods
- Cable tray and ladder installations
- Underground and overhead reticulation systems

Installation of MV/LV Reticulation Systems

- Site preparation and planning
- Installation sequencing
- Safety procedures during installation
- Equipment alignment and mounting
- Substation installation practices
- Installation QA/QC requirements

Refurbishment & Upgrading of Electrical Systems

- Condition assessment of aging infrastructure
- Retrofit strategies for obsolete equipment
- Replacement planning
- Modernization of switchgear and substations
- Energy-efficient upgrade opportunities
- Life extension methodologies

Testing & Commissioning of Electrical Systems

- Pre-commissioning inspections
- Insulation resistance testing
- Continuity and polarity testing
- Transformer testing
- Relay protection testing
- Functional commissioning procedures
- Energization protocols

Protection, Safety & Compliance

- Electrical protection schemes
- Arc flash risk mitigation
- Lockout/Tagout procedures
- Earthing safety requirements
- IEC, IEEE, NEC, and local compliance standards
- Permit-to-work systems

Fault Diagnosis & Troubleshooting

- Common MV/LV faults and causes
- Cable fault detection methods
- Transformer fault diagnosis
- Switchgear malfunction analysis
- Thermal imaging applications
- Root cause analysis techniques

Maintenance & Asset Reliability Management

- Preventive and predictive maintenance strategies
- Maintenance scheduling
- Condition monitoring systems
- Asset lifecycle planning
- Reliability-centered maintenance (RCM)
- Spare parts management

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LIVE ONLINE TRAINING | 2 – 3 JUNE 2026

**R 8 999 PER
DELEGATE**

Booking Contact (Approving Official) Mr/Mrs/Ms

Full Names: _____

Company name: _____

Direct Tel No: _____ E-mail: _____ Fax: _____

VAT No: _____

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Person Responsible for Finance: _____ Direct Tel No: _____ Date of Payment: _____

BANKING DETAILS:

Independent Training Management Pty Ltd
Bank: FNB South Africa
Account Number: 62685879276
Branch Code: 251650
Branch: Randburg

THE FOLLOWING HEREBY CONFIRM ATTENDANCE TO THE WORKSHOP

Delegate1: Names _____

Position: _____ E-Mail: _____

Delegate 2: Names _____

Position: _____ E-Mail: _____

Delegate 3: Names _____

Position: _____ E-Mail: _____

Delegate 4: Names _____

Position: _____ E-Mail: _____

Delegate 5: Names _____

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All fees are current at the time of going to print; however, we reserve the right to change them.

2. Additional Delegate Rates:

Additional delegate rates apply when bookings are made at the same time on the same course.

3. Confirmation Instructions:

On receipt of this submitted booking form and payment or purchase order you will receive a confirmation letter by email confirming your participation in the training event. This includes a location map with directions and venue details and starting times.

4. Attendance:

Please note that no learner will be permitted to attend any training course without proof of payment or an order no.

5. Delegate Substitution:

Substitutes can be made at any time without incurring a penalty. Please inform us in writing so we can make the necessary arrangements for the new learner.

6. Payment:

Payment can be made by cheque or by electronic transfer, and must be received 5 working days prior to the commencement of the course.

Please quote the reference number from your invoice and organisation name so that payments can be tracked. All cancellations must be done in writing and emailed directly to Independent Training. Management Inform us immediately if you have to re-schedule or cancel the booking so that we can inform the caterers and conference venue.

The following charges apply if you cancel:

- 11 - 30 days before a course = 10% of the course fee
- 6 - 10 days before a course = 20% of the course fee
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