Training Program:

Installation and Testing of Underground Power Cables

Introduction:

Underground power cables are very important for electrical power transmission and distribution especially in populated areas. The course contains the different types of underground cables, cable construction and insulation, maximum current carrying capacity of underground power cables, cable ratings, short circuit rating, the installation of underground power cables, testing of underground power cables according to standard, the accessories of cables and fault location of underground cables. The course presents the recent technological aspects in fault locating, preventive maintenance of the power cables and cable joints and termination.

Who Should Attend?

Electrical power engineers and advanced operating staff of substations, factories, electrical distribution networks and transmission.

Methodology

This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

Accreditation:

BTS attendance certificate will be issued to all attendees completing a minimum of 80% of the total course duration.

Objectives

- To know the underground power cable construction
- To know the principles of underground power cables installation
- To learn how the underground power cables can be tested according to standard specifications
- To know the ratings of underground power cable and the short circuit loading
- To know the performance of underground power cables accessories
- To study the fault locators of underground power cables

Course Outline

Electrical cable construction

- Components of underground power cables
- Cable insulation materials ,effect of humidity and temperature on the underground power cables insulation
- Cable conductors material
- Cable sheathing, metallic and non metallic

- Cable armoring
- Cables Troubleshooting
- Insulation current-capacitive current and resistive current-polarization index
- Current carrying capacity of underground power cables
- Short circuit ratings of underground power cables
- De-rating factor

Testing of Underground power cables

- Insulation testing of underground power cables
- AC high potential testing
- Partial discharge testing
- Tan Delta or cable power factor test
- Insulation quality tests
- Type tests, routine tests and maintenance tests
- Testing according to IEC, CENELEC and ICEA
- Might the cable fails during testing

Installation of Underground power cables

- Trenching of underground power cables
- Clamping, Cable pulling , and mounting of accessories

- XLPE cable system installation
- Types of cable installation
- Trefoil and flat formation systems
- Underground power cables grounding
- Thermal performance of underground power cables

Cables Fault Locator

- How the fault locator work
- Selecting of fault locator
- Time domain reflectometry
- Low voltage TDR/Cable radar
- Surge generators
- Electromagnetic surge detection
- High voltage radar
- Surge detector