

Condition assessment of HV Bushings

Course Code: TR-B-4, Duration: 1 day

- **Introduction to the Construction and Type of Bushing**
 - Construction details of condenser type bushing
 - Capacitance grading and Electric field distribution
 - Bushing Test Tap Construction.
 - Bushing Potential Tap Construction.

- **Basic design parameters**
 - Available design of bushing Tap and Tap voltage calculation
 - Difference between Potential Tap and Test Tap of the bushing
 - Insulation Level (Power frequency , Lightning and switching impulse test)
 - Partial Discharge limits
 - Creep age distance

- **Factory test of Bushing**
 - HV Power frequency withstand test and Impulse test
 - Partial discharge test
 - Capacitance and Power Factor Measurement

- **Condition monitoring of Bushing**
 - Capacitance and Power Factor Measurement (C1 and C2 test and their significance)
 - Negative power factor and its significance
 - Thermovision Scanning
 - DGA and Routine testing of Oil (Norms of DGA interpretation by IEC and CIGRE guideline)
 - Partial discharge test
 - Reasons of Bushing failure

- **Residual life assessment of oil filled Bushing**
 - Furan, DGA, acidity & moisture of Bushing oil
 - PDC+FDS method for moisture measurement of paper insulation
 - DP test of paper sample from aged and failed Bushing
 - Capacitance and Power factor measurement & trend analysis
 - Partial discharge test by on-line electrical method and acoustic method

- **Case studies- Bushing incipient fault detection by condition based monitoring.**

- **Investigation of Bushing failure and finding of design, manufacturing weakness.**

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