Overvoltage and insulation coordination

OBJECTIVE

- Analyse the required actions to ensure the insulation coordination of electrical systems.
- Get to know the equipment needed to perform the choice of surge arresters, shielding and line insulation, earthing and other effects.

AUDIENCE

Engineers and technicians with an electrical background.

CONTENT

Insulation Coordination

Introduction to the insulation coordination

- Standards and bibliography
- Standard tests
- Insulation coordination procedures
- Insulation levels

Temporary overvoltage (TOV)

- Single phase to ground faults
- Load rejection
- No load line
- Resonance and ferro resonance

Fast front Lightning overvoltage

- Lightning strike
- Travelling waves theory
- Lattice diagram: Reflection-refraction diagrams

Slow front overvoltage

- Basic concepts
- Overhead lines: energization and reclosing phenomena
- Trip of small inductive loads
- Trip of capacitive loads
- Fault tripping procedure and effects: transient recovery voltage

Insulation levels selection and coordination

- Standards
- Insulation materials and overvoltage
- Types and definitions
- Normal distribution
- Weibull distribution
- Sparking distribution voltages and overvoltage
- Insulation coordination
- Coordination withstand voltages
- Required withstand voltages
- Test conversion rates
- Minimum clearing distances
- Insulation and substation distances
- String insulators
- String insulators creapage line
- Post insulators

Protection equipment. Surge arresters

- Standards
- Protection equipment against overvoltage
- General features
- Spark gaps
- Surge arresters
- Characteristics of metal oxide surge arresters
- Overhead line protection with surge arresters

Insulation coordination. Substation case study

Shielding

- Introduction to lightning strike phenomenon
- Standards and bibliography
- Lightning strike
- Travelling waves
- Shielding
- Electro-geometric model shielding method (EGM)
- Overhead line shielding
- Substation shielding
- CENELEC shielding method

LIVE ONLINE TRAINING
Duration: 8 hours
Dates:
May 17th – 18th or November 2nd – 3rd 2023
Price: 600 €
More information and registration here:
https://bit.ly/HitachiGridAcademy

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