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.

Course topics
- 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
Date and Location

Call 1:
- Date: June 22nd – 23rd
- Class time: 08h30 - 14h30
- Location:
  ABB Power Grids UK Limited
  Power Consulting
  Oulton Road Stone,
  Staffordshire ST15 0RS
  United Kingdom

Call 2:
- Date: October 6th – 7th
- Class time: 08h30 - 14h30
- Location:
  ABB Power Grids Spain
  Power Consulting
  Calle San Romualdo, 13
  28037 – Madrid
  Spain

Price

Call 1 (UK): 1.250 € per person
Call 2 (Spain): 1.450 € per person

Registration

Register here: madrid.abbuniversity@es.abb.com
Please register before
- Call 1 (UK): June 8th
- Call 2 (Spain): September 22th
Contact us
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28037 Madrid
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For more information