Voltage Regulators, Capacitors, Reactors & Reclosers

TE199

Course Overview:

Utilities are required to provide power to their customers within a specific range of voltage. Voltages that are outside of that range may damage equipment or cause it to operate inefficiently. For example, voltage that is significantly lower than the desired range may cause lights to dim and motors to burn out. Voltage that is significantly higher may cause lights or appliances to fail prematurely. In an ideal ac power system, the voltage and frequency at every supply point would be constant and free of harmonics, and the power factor would be unity. In particular these parameters would be independent of the size and characteristics of consumers' load. In an ideal system, each load could be designed for optimum performance at the given supply voltage, rather than for merely adequate performance over an unpredictable range of voltage. Moreover, there could be no interference between different loads as a result of variations in the current taken by each one.

Course Objective:

Describe why voltage regulation is needed in a transmission and distribution system
Explain the Effect of Raising Voltage at the Substation Bus
Identify the main components of automatic voltage regulator
Identify the principle of operation of the auto reclosure
Explain the typical locations of auto-reclosure on the distribution system
Identify the advantages of installing auto-reclosures on the distribution system
Describe how a sectionalize operates in a reclosure circuit
Describe how an automatic voltage regulator adjusts voltage

Course Outline:

INTRODUCTION
1.1 Describe why voltage regulation is needed in a transmission and distribution system
1.2. Voltage Standards
1.3. Factors affecting voltage drop along distribution feeders
1.4. The Effect of Raising Voltage at the Substation Bus
1.5. The effect of load power factor on line voltage drop
1.6. Functional of the capacitor in raising voltage
1.7. Purpose of auto-reclosure (ACR)
3.2.2 Identify the main components that enable a step voltage regulator to adjust voltage
3.2.3 Describe how an automatic voltage regulator adjusts voltage
7.4 Physically Disconnecting the Regulator
7.5 Regulator Installation
2. 1-PHASE & 3-PHASE REGULATORS
3. SHUNT & SERIES CAPACITORS
4. SHUNT & SERIES REACTORS
5. CIRCUIT RECLOSERS

Who Should Attend:

In general, electrical power engineers, supervisors and qualified distribution system technicians can which work in substation and operation & maintenance of distribution department take part in this course.

Training Language:

EN / AR

Training Methodology:

-Presentation & Slides
-Audio Visual Aids
-Interactive Discussion
-Participatory Exercise
-Action Learning
-Class Activities
-Case Studies
-Workshops
-Simulation