High Voltage AC Power, Part 1

**Duration:** 60 mins  **Level:** Entry  **Pass mark:** 80%

**Course Description:**

The purpose of this course is to introduce transmission and distribution (T&D) personnel to some of the factors that influence transmission efficiency and power loss. The course explains how T&D systems are designed to minimize power loss and how resistance, capacitive reactance, and inductive reactance can be manipulated to help maintain minimum levels of power loss. At the conclusion of this course, participants should know what power loss is and how power loss is affected by impedance. They should understand that impedance comes from resistance, capacitive reactance, and inductive reactance.

**Learning Objectives:**

- Define the term "power loss"
- Explain the relationships between voltage, current, and resistance in an electrical circuit
- Explain the relationship of transmission voltage to power loss
- Define the term "inductance"
- Define the term "inductive reactance"
- Explain how inductance develops in transmission lines
- Give examples of how inductive reactance can be changed in transmission lines
- Define the term "capacitance"
- Define the term "capacitive reactance"
- Explain how capacitance develops in transmission lines
- Give examples of how capacitive reactance can change in transmission lines
- Define the term "resistance"
- Identify and explain the factors that determine the resistance of a conductor
- Define the term "impedance"
- Describe the relationships between impedance, current, and voltage
- Define the term "resonance"
- Explain the relationship between impedance and power loss
- Define the term "corona" and explain how corona can be minimized