

Overhead Lines, Maintenance and Construction Training

## Description

## **Course Description**

Overhead Lines form the majority of Transmission and Distribution Circuits due to their much lower cost than equivalent cables at the same voltage and current ratings. An Overhead Line is a set of 3 wires, onefor each phase, referred to as the conductors. At Transmission Voltage Levels the conductors are normally strung on steel-latticed towers of many different shapes and size. However at Distribution (lower voltages), constructions in timber and occasionally reinforced concrete are used. The seminar addresses the technology over a wide range of voltage levels for both transmission and distribution circuits.

## **Course Objective**

- To ensure delegates develop their existing knowledge and are acquainted with latest developments in Overhead Line Technology.
- In addition that the principles can be appropriately applied in every day work to improve their personal effectiveness and efficiency.

## **Course Outline**

- Overhead Lines versus Underground Cables
- Support Structures
- Steel Lattice Towers
- Wooden Poles
- Overhead Line Foundations
- Soil Investigation
- Foundation Types
- Foundation Design
- Site Works

- Overhead Line Routing
- Objectives
- Preliminary Routing
- Survey Equipment Requirements
- Aerial Survey
- Ground Survey
- Ground Soil Conditions
- Wayleaves, Access and Terrain
- Optimisation
- Detailed Line Survey and Profile
- Computer-aided Techniques
- Structures, Towers & Poles
- Environmental Conditions
- Typical Parameters
- Effect on Tower or Support Design
- Conductor Loads
- Substation Gantry Worked
- Structure Design
- w.acculearn.co.uk Lattice Steel Tower Design Considerations
- Tower Testing
- Pole and Tower Types
- Pole Structure
- Tower Structure
- Conductors
- Environmental Considerations
- Conductor Selection
- Types of Conductor
- Aerial bundled conductor
- Conductor Breaking Strength
- Bi-Metal Connectors
- Lightning
- Insulator arcing horn co-ordination
- Surge Divertors
- Load-Flow Constraints in Power Networks
- Calculated Ratings
- Power Carrying Capacity
- Corona Discharge Line Rating Calculation
- Worked Example and Exercise
- Design Span
- Clearances and Loadings
- Distribution Voltage Clearances
- Transmission Voltage Level Clearances
- Overhead Line Clearance Calculations
- Worked Example and Exercise
- Overhead Line Fittings
- Aerodynamic Phenomena
- Suspension Clamps

- Sag Adjusters
- Other types of Fittings
- Overhead Line Impedance
- Inductive Reactance
- Capacitive Reactance
- Resistance
- Worked Example and Exercise
- Overhead Lone Maintenance
- Case Studies

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