

Traction Power System

DAY 1

Introduction to and Requirements for Traction Power and/or Supply Systems

- History of Electric Traction
- Modern Electric Trains
- Requirements for Traction Power Systems
 - Bulk Supply Substations (BSS)
 - Traction Substations
 - Power Distribution Network
- Parameters to be considered in the Design
 - Safety
 - Reliability
 - Availability
 - Maintainability

DAY 2

Traction Supply Systems

- Direct Current (DC) System
 - Nature of Traction Load
 - Means to Reduce Harmonics
 - Automatic Assured Receptivity Unit
 - Stray Current
 - Touch Voltage
 - Over Voltage Protection
- Alternative Current (AC) System
 - Single Phase
 - 3 - Phase
 - Interference and Induction
 - AC Traction Supply Feeding Method
 - Booster Transformer Feed
 - Direct Feed
 - Auto - Transformer (AT) Feed
 - Co-axial Cable Feed

DAY 3

Track Electrification – 1 (Overhead Catenary System)

- Design Consideration
- Overhead Catenary System
 - Simple Construction
 - Simple Catenary
 - Stitched Catenary
 - Compound Catenary
 - Major Components
 - Supports
 - Cantilever
 - Stagger
 - Wires
 - Sectioning
 - Tensioning
 - Section Insulator
 - Phase Break / Neutral Section

DAY 4

Track Electrification – 2 (Rigid Conductor System, 3rd Rail System, Track Embedded Coil)

- Rigid Conductor System
 - Support on Soffit
 - Components (*By Saitong Railway Electrification*)
 - Installation
- Conductor Rail System (*3rd Rail System*)
 - Top Running Conductor Rail
 - Steel Rail
 - Composite Rail
 - Ramp
 - High Speed Ramp
 - Low Speed Ramp
 - Side Entry Ramp
 - Conductor Rail Joint
 - Expansion Joint

- Mid-point Anchor
- Cable Termination Assembly

DAY 5

Long Stator Winding on Guideway and Conclusions

- Power Supply to Stator Sections Embedded in Guideway
- Long Stator Winding Linear Motor Principle
- Propulsion System
- Conclusions
 - Basic Requirements of the Traction Power Supply for a Railway Network
 - Types of Traction Supply and the Major Components
 - Overhead Catenary System
 - Conductor Rail System