€TRAINING

Traction Power System

2 - 6 December 2024
London (UK)
Landmark Office Space

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Introduction:

In addition to introducing the principles and key elements of the traction power network design process, this traction power system training program is designed to provide a thorough understanding of the fundamentals of traction power supply in railway engineering and systems. An overview of the ideas in a basic traction power system will be given in this training program, along with case study examples.

Program Objectives:

At the end of this program the participants will be able to:

- Recognize the Basics of Electrifying Rail Systems.

- Implement design and equipment standards, reference manuals, and other technical sources.

- Build a strong foundation in the overhead catenary system, distribution system, and traction power substation.

- Discusses the construction of a reliable traction power supply.

- Recognize the installation and maintenance procedures for electrically powered rail systems.

Targeted Audience:

- State railway systems' professionals and officials.

- Infrastructure Solutions Consulting project managers.

- Train engineers and mass transit systems.

- Rail Engineering Designers.

- Professionals or engineers in traffic and transportation.

- System Technicians for Railways.

- Consultants and researchers.

- Transit system practitioners.

- Urban planning and development experts.

- Roadway and highway designers.

Program Outline:

Unit1:

Overview and Requirements for Traction Power and/or Supply Systems:

- History of Electric Traction.

- Modern Electric Trains.

- Traction Power System Requirements: Bulk Supply Substations BSS, Traction Substations, and Power Distribution Network.

- Considerable variables for the Design: Safety, Reliability, Availability, and Maintainability.

Unit2:

Supply Systems for Traction:

- Direct Current DC System.

- Alternative Current AC System and AC Traction Supply Feeding Method.

Unit3:

Track Electrification - 1 Overhead Catenary System:

- Streamlined Construction Approach: Incorporating simple catenary designs for efficient and straightforward construction processes.

- Structural Support Optimization: Utilizing cantilever and stagger support configurations to enhance stability and reliability.

- Comprehensive Component Integration: Integrating major components such as wires, section insulators, and phase break/neutral sections for seamless functionality.

- Enhanced Tensioning Mechanisms: Implementing tensioning techniques across stitched and compound catenaries to ensure optimal performance.

- Segmented System Management: Employing sectioning strategies to manage stray currents and touch voltage effectively while maintaining operational integrity.

Unit 4:

Track Electrification - 2 Rigid Conductor System, 3rd Rail System, Track Embedded Coil:

- Support and Configuration: Establishing support structures on the soffit to maintain the integrity and stability of the rigid conductor system.

- Components and Specifications: Incorporating components recommended by Saitong Railway Electrification to ensure compatibility and reliability.

- Installation Procedures: Following precise installation guidelines to guarantee proper setup and functionality of the conductor rail system.

- Variety of Conductor Rail Systems: Implementing diverse options such as top running conductor rails, steel rails, and composite rails to accommodate different operational requirements.

- Ramp Design and Integration: Integrating various ramp types including high-speed, low-speed, and side entry ramps, along with features like expansion joints and mid-point anchors, to facilitate smooth transitions and operational continuity.

Unit 5:

Long Stator Winding on Conclusions and the Guideway:

- Power Supply to Stator Sections Embedded in Guideway.

- Long Stator Winding Linear Motor Principle.

- Propulsion System.

- Conclusions.