€TRAINING

Traction Power System

5 - 9 May 2024
Online

Traction Power System

REF: N1936 DATE: 5 - 9 May 2024 Venue: Online - Fee: 2500 Euro

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.