

Mode of Programme: ITEC (Classroom)

CERTIFICATE COURSE IN POWER DISTRIBUTION MANAGEMENT

Duration: 3 Weeks Classroom Programme

Dates: 25th Sept to 13th Oct, 2023

AIM:

Power distribution forms most crucial chain of the entire power business. If this sector is able to demonstrate commercial viability, there is every possibility that the entire power sector will yield positive results. In last few decades, India through its many flag ship schemes of **Government of India dedicated for power sector such as Integrated Power Development Scheme (IPDS), Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY) for 100% Village Electrification, SAUBHAGYA- Pradhan Mantri Sahaj Bijli Har Ghar Yojana** with objective to provide Electricity for every home has made it possible to develop strong electrical infrastructure all over the country and thereby made a provision of electricity for every Indian.

Distribution sector being a consumer centric organisation has more expectations such as supply of electricity with high quality, reliability and at the most reasonable rates. Therefore, there is necessity to modernize and adopt best practices in power distribution sector. The best technology application and practices will improve quality and reliability of power supply to customer, besides, help in reduction of losses and improve performance of organisation. Experience of Indian Power Sector is very relevant to the countries on the growth trajectory is very relevant.

This programme is designed to give a broad overview on technical, financial and managerial aspects for engineers and managers working in power distribution sector by making them aware about challenges and opportunities in Power Distribution Sector. The Programme is proposed to cover important aspects related to power distribution management such as design, O&M, regulatory, Commercial and, efficiency improvement measures so as to give complete all-round exposure of distribution sector to the participants.

OBJECTIVES/OUTCOME:

- Impart knowledge on Design, Operation and Maintenance of distribution systems
- Orient the participants with advance technologies in power distribution sector.
- Educate the participants on regulatory, commercial and advance management areas of Power Distribution

TOPICS TO BE COVERED:

Introduction

Power scenario of India and its Organizational Structure
Planning of distribution system, Load Forecasting & Analysis
Regulatory concepts and Tariff Concepts

Design, Construction, Operation & Maintenance of Distribution substations and lines

Specifications of materials and Construction standards for Distribution systems
Mechanical Design of lines - Span and Sag Calculations
Electrical Design – Voltage Regulation – Selection of Conductors

Distribution Transformers – Types, Operation & Maintenance & Failure Analysis
Indoor and Outdoor Switchgear – Installation and Maintenance
Design and construction of 33/11 KV Substation and line
Adoption of Innovative and Cost-Effective Technologies & low cost 33/11 KV SS
Safety Measures and Prevention of Electrical Accidents
Switched Capacitors – HT & LT, Reactive Power Compensation
Power System Protection & Relays coordination
Earthing System and Protection against Lightning, Surges and Transient
O & M Practices for distribution lines and Sub-stations and lines

Power Quality & Customer Service

Quality of service and Power Supply
Standards of performance for power supply
Reliability – Reliability Indices
Customer Relation Management & Customer Care Center
Harmonics – Courses – Remedial Measures.

Recent Developments in power distribution Management

Participatory Modes (Franchisee Model) in Distribution Models
HV Distribution System
Distribution Automation & SCADA and IT for Distribution Management
Management Information Systems (MIS) & Consumer Information System (CIS)
Geographical Information Systems (GIS) and Global Positioning Systems (GPS)
Smart Meter & Smart Grid
Mobile/Web enabled Services

Revenue management of Power distribution utilities

Issues and challenges in Metering, Billing & Collection
Different Distribution Participatory Models including Franchising
Metering Technologies & Advancements in Metering – Remote, Pre-paid & Pilfer Proof
Smart Metering and Spot Billing technologies
EV Charging Infrastructure
Concept of content and carriage in Distribution Management

Performance improvement of distribution systems

Energy Audit & Accounting
Energy Efficiency and Distribution loss assessment and Loss Reduction methodologies
Optimal Integrated Strategy for Loss Reduction and Voltage Improvement
Pilferage & Theft of Energy
Load management & Demand Side Management Techniques

Commercial Aspects of power distribution

Tariff policies and pricing mechanisms for power utilities
Energy Audit and Accounting, Technical and commercial Losses in power sector
Metering, Billing and Collection of revenue
Power Purchase Agreement, short term and long-term power purchases
Electricity Market, Trading & ABT

Regulatory Aspects related to Power distribution Sector

Regulatory framework in Power sector,

Electricity Act-2003

Legal Framework, Tariff Policy, Grid code, Open Access, Energy conservation act-2010,

General Management

Change Management, Time Management & Team Building

Field Visits

Visit to 33/11 KV Substation & GIS Sub-Station

Visits to Meter and Transformer Manufacturing Units

Exercises, Case studies and projects

Voltage Regulation Calculations for 33 KV, 11 KV and LT Lines

Calculation of Line Losses in Distribution

System Improvement Schemes – Methodology

Sample DPR for System Improvement Project

Sample DPR for HVDS Scheme

Load Flow Study