1. **CERTIFICATE COURSE IN POWER DISTRIBUTION MANAGEMENT**

**Duration: 6 Weeks**

**AIM**

Power distribution forms most crucial chain of the entire power business. If this segment is able to demonstrate commercial viability and maintain uninterrupted power supply to customer, there is every possibility that the entire power sector will yield positive results. 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. Improvement of Electrification works, Efficiency improvement of sector, Modernisation and Refurbishment of HV & LV Distribution system will increase customer satisfaction on the one hand and increase the revenue of the utility on the other. The Programme is proposed to cover all aspects related to power distribution management such as design, O&M, regulatory, Commercial and, efficiency improvement measures such as franchisee models so as to give complete 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

**CONTENTS OF THE COURSE**

**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

**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

HV Distribution System

Distribution Automation & SCADA

**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

**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

Harmonies – Courses – Remedial Measures.

**Recent Developments in power distribution Management**

Participatory Modes (Franchisee Model) in Distribution Models

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

**Commercial Aspects of power distribution**

Tariff policies and pricing mechnisms 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

1. **Regulatory Aspects related to Power distribution Sector**
2. Regulatory framework in Power sector,
3. Eectricity Act-2003
4. 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