**3. EMERGING TRENDS IN RURAL ELECTRIFICATION**

**Duration: 4 Weeks**

**AIM**

Electricity is an indispensable requirement for all activities of human life. It has been recognized as a basic human need and a critical infrastructure on which the socio-economic development of an economy depends. Rural Electrification is viewed as a prime mover for rural development and the basic pre-requisite for all industrial activities besides contributing significantly to increase agricultural productivity, creating employment and income generation. However, distribution of electricity to rural areas through grid connectivity is more complex by virtue of its nature as it involves high cost & technical losses, besides, demand are very low and scattered. In these circumstances, decentralized generation and distribution is the convenient mode for supply of electricity to remote and far-flung rural areas. In recent times, attempt has been made to harness and manage the distribution of electricity at local level with people’s participation for adequate distribution at affordable prices.

#### OBJECTIVES

* Familiarize participants with recent practices in Rural Electrification and Emerging trends in Rural Power Management
* Impart knowledge on Planning and management for Rural Electricity Distribution sector
* Discuss different issues about power distributed power Generation Options for rural electrification through mini and micro grids

**CONTENTS OF THE COURSE**

**Introduction**

Power scenario in India

Organizational Structure of Power Sector

Reforms, Acts & Policies in Power Sector

Regulatory Mechanisms and their Functions

**Rural Electrification**

Rural Electrification in India – Policies & Challenges

Government policies and initiatives and funding mechanisms

Rural Electrification - Experiences of developing Countries

Institutional Framework for Financing Rural power projects

**Rural Distribution Systems planning**

Rural Distribution changing Scenarios, Rural Distribution Network Design & Planning

Load Forecasting & Load Management

Feeder Segregation and Renovation, Modernization Schemes

DSM Techniques and Methodology

**Rural Power Distribution Systems - Operation & Maintenance**

Construction Practices in Rural Power Distribution

Standards and specifications,

Operation and Maintenance Practices for power distribution systems

Maintenance issues related to transformers & Sub-Station Equipment

Protection of Sub-Station Equipment & Ancillaries

Earthing Practices and Safety Measures, Prevention of Electrical Accidents and Disaster Management

**Rural Power Distribution Management**

Standard of Performance for Power Supply

Quality of Service & Supply

Performance improvement strategy for Loss Reduction and Voltage Improvement

Switched capacitors & Reactive Power Compensation

Rural Power Distribution Management and various participatory models

Rural Power Distribution Management by Franchisees

Energy Audit & Accounting, Electricity Metering, Billing & Collection

**Renewable generation and rural power distribution**

Renewable Energy Technologies, Integration of Solar, Wind and other power generation technologies for remote rural power distribution,

Different options of power distribution for rural areas such as Distributed Generations and renewable energy integration, Concept of DDG and MINI /Micro Grids

Generation through other renewable mode such as Mini/Micro Hydel, Wind farms, Solar, Bio-mass, municipal waste, Sustainable power infrastructure etc

**Emerging Trends in Rural Power Distribution**

Innovative & Cost Effective Technologies for Rural Power Distribution

Distribution Automation & SCADA

Specifications for Materials, Equipment & Unmanned Sub-station

IT Applications in Power distribution sector

Metering Technologies and their Advancement

 Remote Metering & Pre-paid Metering

**General Management**

Change Management, Time Management & Business Communication, Work Life Balance and stress management

**Field Visits**

Power Generating Units – Hydel, Thermal, Solar, Wind Farms, etc.

Regulatory Commissions, Sub-Stations – 132/33KV & 33/11KV

Load Dispatch & SCADA Centers, Renewable Projects